

### **REMARKS**

Claims 1-6 and 18-23 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 102**

Claims 1-6 and 18-23 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Gable et al. (U.S. Pat. No. 7,016,833). This rejection is respectfully traversed.

Claim 1 calls for “an input receptive of speech spoken by a user” and “an extraction module receives speech from the input and extracts glottal source parameters indicative of a glottis of the user from the speech.” Applicant submits that Gable fails to anticipate the above limitations.

Gable at best appears to show a system that uses a glottal electromagnetic micropower sensor (GEMS) to collect non-acoustic electromagnetic (EM) data that is related to the motions of the tracheal and glottal tissues during speech production. Gable, col. 3, Ins. 33-37. The system further uses a microphone (202) and an amplifier 204 to collect acoustic data such as a speech. Gable, col. 4, Ins. 40-41. Even if the non-acoustic EM data (or any parameters derived from the non-acoustic EM data, such as the glottal shape parameter) can be considered somehow as relevant to the claimed glottal source parameters, the non-acoustic EM data (which itself are not a speech) is collected by the GEMS, which measure human tissue motion in real time (col. 4, Ins. 10-

11) rather than extract data from a speech spoken by a user collected by the microphone.

Further, although Gable appears to show that its system uses microphone to collect acoustic data, the system does not appear to extract any parameters indicative of a glottis of the user from the acoustic data collected.

In addition, claim 6, in combination with its base claim 1, calls for that the extraction module extracts, from the speech, glottal source parameters that are indicative of a glottis and that include glottal source waveform shape related to phase information. In contrast, the system of Gable cannot extract glottal source waveform shape from the acoustic data. Rather, Gable at best appears to show that glottal cycles and glottal shape parameters are determined solely based on the non-acoustic EM data. For example, Gable states

[t]he theory and method of extraction for each of the different verification parameters for one embodiment will now be discussed. The parameters are the feature vectors used in the DTW algorithm to calculate the "distance" used to make the accept/reject decision on an identity claim. Verification parameters represent the individuality of the speaker, containing information about the timing, pitch, amplitude or spectral content of the speech. In one embodiment, the parameters used are: a pitch parameter extracted using EM data; pitch synchronous spectral coefficients extracted using EM data; energy; pitch synchronous autoregressive and moving average (ARMA) coefficients extracted using EM data; and GEMS signal parameters, which are non-acoustic. (emphasis added)

Gable, col. 5, lns. 26-39. Gable further states,

[a] new, non-acoustic parameter is extracted to characterize the shape of the waveform from the GEMS device and compare it to different speakers. In one embodiment, a straightforward method using the GEMS signal shape directly is used. Approaches that use other characterizations, such as wavelets, polynomial coefficients, and the K-L expansion coefficients, are all possible.

Gable, col. 6, ln. 66 to col. 7, ln. 5. See also Gable, col. 5, ln. 40 to col. 6, ln. 9; col. 6, ln. 66 to col. 7, ln. 33.

In view of the foregoing, Applicant submits that claims 1 and its dependent claims 2-6 define over the art cited by the Examiner.

Claim 18 recites “extracting glottal source parameters which correlate to a glottal of the user from the speech.” Therefore, claim 18 and its dependent claims 19-23 define over the art cited by the Examiner for one or more of the reasons set forth above regarding claim 1.

#### **CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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